

MM+ Research Areas

	Background	Achievements
Measurement of levels and trends in maternal mortality		
Decennial censuses	MDG-5 has resulted in strong demand for national-level maternal mortality data, with keen interest in the use of census for maternal mortality. DFID has supported this work by funding the Health Metrics Network (HMN) to advocate for the measurement of maternal mortality via the census. This is a collaborative approach to the international agenda of census-related activities, and Impact is one of the technical groups within this collaboration.	A meeting of concerned partners met in London in September 2007 and proposed improvements to the maternal mortality questions used in censuses, which are likely to be accepted in the UN Principles and Recommendations for the 2010 round of National Population Censuses. This coalition of partners agreed to promote the use of the census (including in a letter published in the Lancet). To date, three workshops have been conducted. Two data analysis workshops partially sponsored by Impact were held in Nicaragua (Nov 06) and in Massachusetts (June 07) for Latin American, African and Asian countries that have already collected maternal mortality data in their censuses. In October 2007 a meeting was held at WHO for 8 countries planning on adding the maternal mortality questions to their upcoming censuses.
Community-based reporting using key informants	Maternal Deaths from Informants (MADE-IN) was a new method to measure maternal mortality developed by Impact researchers. It was followed by a verification process called the Maternal Death Follow-On Review (MADE-FOR). Routine reporting of deaths is lacking in developing countries. Impact I research demonstrated that using informants has the potential to represent a cost-effective, feasible and sustainable alternative to household surveys, where administrative processes function down to a village or community level. Interest in this technique is very strong at the district level and from partners such as UNICEF who wish to see it rolled-out into other parts of Indonesia.	MADE-IN/MADE-FOR has been developed as a web-based tool for use by policy-makers, programme officers, and other maternal health practitioners. It is included as Tool 8 in the Impact Toolkit – Version 2, to be released October 2007. A variant of MI/MF has now been developed for use where networks of informants are more limited, and is being piloted in Serang and Pandeglang districts of Indonesia.
Sampling at Service Sites (SSS) trial	There has long been a need for cost-efficient methods for measuring maternal mortality, and SSS represents one of the	A key paper has been produced which summarizes the experience with SSS, and has

	<p>few new tools developed over the last decade for this purpose. To date, SSS has been tested in six trials across Burkina Faso, Ghana and Indonesia. There is strong potential for this method to address the urgent need for monitoring MDG-5.</p> <p>SSS has been developed as a web based tool for use by programme officers and other maternal health practitioners. It is included as Tool 1 in the Impact Toolkit – Version 1 released February 2007 at http://www.impactinternational.org/toolkit/module4/ss/index.html.</p>	<p>been submitted for publication. Country specific papers are also in preparation. Invited presentations have been given at the INDEPTH annual meeting, at FIGO, and at PAA, where the poster presented by a team member from Burkina Faso received a prize. Discussions are underway for further trials in collaboration with HMN and with other research groups across a wide variety of countries.</p>
<p>Measurement of causes of maternal death</p>		
<p>Verbal autopsies (InterVA-M)</p>	<p>Verbal autopsy (VA) is a method of establishing levels of mortality, causes of death (COD) and information on underlying factors that may have contributed to death. A VA consists of an interview with the primary care-giver of the deceased on signs, symptoms and circumstances surrounding the death and interpretation of the interview data to assign a cause of death. InterVA-M (Interpretation of Verbal Autopsy material for Maternal deaths) was developed in response to the variability in interpretation of VA data. Developing practical methods which can consistently and reliably help to assign cause of death in sometimes otherwise missed pregnancy-related deaths in the community is an urgent priority. A key paper has been published in Population Health Metrics. InterVA-M is available as a web tool at http://www.interva.net.</p>	<p>Fieldwork is planned in Burkina Faso (November 2007) and Indonesia (January 2008) to investigate some of the cause of death patterns found during earlier work by Impact I. This work will develop the VA methodology through assessing the reliability of the interpretive model and consistency of information from VA respondents.</p>
<p>Epidemiological transition</p>	<p>Here, we are applying the concept of epidemiological transition to maternal mortality, to describe changes in the patterns of cause of death that occur as levels of mortality fall, in line with demographic and socio-economic changes. By describing changes in pregnancy-related mortality (levels and causes) <i>in parallel</i> with changes in all causes of mortality in women of reproductive age (WRA) and changes in contextual factors, we will improve our understanding of aetiology and thus the need for specific intervention strategies. This work links the measurement of both cause and determinants of pregnancy-related death, looking at changes over</p>	<p>A literature search has been completed and data have been abstracted. The initial review paper is underway. Data sets from the WHO and UK-based sources, amongst others, are in the process of being accessed for further analysis.</p>

	time and also between geographical locations at different stages of transition (both national and sub-national).	
Categorization of causes of death	The ICD is the standard classification system for coding causes of morbidity and mortality, providing the ability to compare the burden and causes of morbidity and mortality between countries and to pool data for regional or global analyses. We plan to explore whether the causes of maternal death be grouped into categories that are more useful to inform public health policy and programme.	A literature review is underway, and plans are being made to hold some expert consensus meetings.
Time of death	Understanding the timing of maternal deaths is essential to better define reduction strategies. Currently, it is assumed that most deaths occur during labour and delivery but this is based on several untested assumptions and on a limited number of studies.	A literature search has been completed and data have been abstracted. Data set sharing is likely between MM+ studies.
Measurement of determinants of maternal death		
Process-to-outcome relationships	Renewed calls have been made to measure maternal and perinatal mortality and process indicators concurrently so that the link between process and outcomes can be firmly established. Research in this area is hampered by the lack of good outcome data. In this stream of work we will examine the association between indicators of provision and use of obstetric care and levels of maternal and perinatal mortality. We will draw on studies, including those by Impact, where special efforts were made to measure maternal and perinatal mortality and provision and uptake of obstetric care, either at the individual or the population level. This work is relevant to the Countdown to 2015 initiative to which MM+ senior researchers are providing technical guidance on the maternal health component.	Suitable data sets are being identified, and a workshop has been proposed to bring together collaborators. A literature review has also been completed. Input from MM+ senior staff has been provided to the October 2006 Countdown to 2015 planning meeting, and we have been instrumental in forming a core technical group on maternal health
Measurement of co-mortality outcomes		
Mother's mortality	This innovative work builds on the work of Impact I, particularly with the growing interest in the maternal, neonatal and child health continuum. Using existing DHS data, this work will	Initial work on DHS analysis is close to completion to show proof of principle, and a journal paper and other dissemination mechanisms are being planned.

	examine relationships between mother–baby–child outcomes. It will provide a new analytical technique for gauging the magnitude of mortality among mothers with young children, and on the number of maternal orphans.	
Communication		
Communication strategy	This element involves the development of a 'best practice' guide to inform the communication of methods and tools from Impact I and the MM+ work streams.	A communication consultant has been engaged, and a workshop held in May.
Algorithm for choosing options	The aim here is to provide a decision tool to help practitioners identify the measurement options available for specific purposes and resource contexts.	A paper has been drafted setting out the options, and will be submitted for publication. This will provide the basis for developing a web-based decision tool.
Communicating methods and tools	This comprises the implementation of the MM+ communication strategy, using the prioritized mechanisms and venues. Inputs have been made to the Impact Toolkit (Version 2), described earlier.	Presentations have been made at FIGO, PAA, and INDEPTH international meetings, as well as in-country meetings (see earlier). Journal papers have been completed on SSS, RAPID, and MADE-IN/MADE-FOR. Updating is underway of the earlier guide on using the Census to measure maternal mortality, published by MEASURE evaluation, and this new version will be a joint publication with Impact.
Leadership in measurement	This comprises invited contributions from major international initiatives, such as PMNCH and HMN, as well as a public relations role in terms of raising awareness of the challenges and opportunities for measuring maternal mortality. A major focus for this role is a newly-created public domain web resource which will serve as a hub for all resources related to maternal mortality measurement, including all relevant tools from Impact research as well as other sources.	Impact has been instrumental in, for example, launching the M&E working group of the PMNCH, invited to lead the Global Burden of Disease element on maternal mortality, and has partnered HMN on several initiatives, including promoting the 2010 Census round and better use of routine health information systems. The new resource website is close to completion (www.maternal-mortality-measurement.org) and will be launched at the Women Deliver conference in late October, during a special panel on maternal mortality hosted by Impact.